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ABSTRACT

This booklet is intended to help mainstreamed mentally retarded, emotionally disturbed, or learning disabled high school students acquire a basic understanding of the responsibilities and working conditions of barbers/cosmetologists and to practice basic math skills necessary in the occupation. The first section provides a brief introduction to the occupation by focusing upon those job tasks of a barber/cosmetologist with which the student is likely to be familiar. The next two sections deal with the work environment of the typical barber/cosmetologist and the training, education, and experience needed for the occupation. Exercises addressing basic math skills used by barbers/cosmetologists are provided. Various suggestions are listed for students interested in further exploring the occupation of barber/cosmetologist. A glossary and answer sheet conclude the booklet. (KC)

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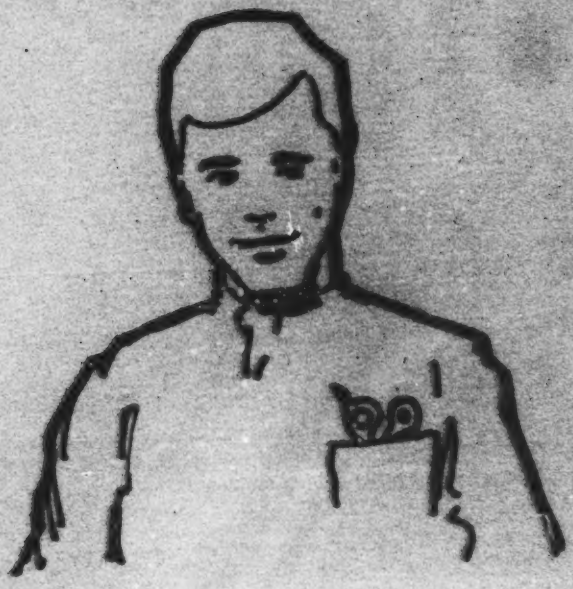
MATH on the job

Barber/Cosmetologist



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MATH ON THE JOB:

BARBER/COSMETOLOGIST

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MATH on the job

Barber/Cosmetologist

In this booklet, you can--

- find out what a barber/cosmetologist does
- see how a barber/cosmetologist uses math
- get a chance to use math as a barber/cosmetologist
- find out the types of things a barber/ cosmetologist needs to know
- find out what courses, training, and education you need to become a barber/cosmetologist

SPECIAL WORDS USED IN THIS BOOKLET

Workers in many jobs use special words or special meanings for words. Learning these words helps you to learn about a job.

You will find some of these special words in this booklet. When these words, and some hard words, are used for the first time, they are followed by one or more **asterisks.*** These words are also in the **glossary**** at the back of the booklet.

DEFINITIONS

*An asterisk (*) is a symbol that tells you to look at the bottom of the page for the meaning, or definition, of the word.

**A glossary is a list of words with their meanings.

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HAVE YOU EVER...

- watched a barber or cosmetologist* cut someone's hair?
- used scissors to cut materials?
- combed your hair in different styles to see how you look in each?
- combed a friend's or relative's hair?

If you have, then you have some idea about the work of a barber or cosmetologist. In this booklet, you will learn about the work of a barber or cosmetologist and how math is important to do the job.

DEFINITION

*A cosmetologist is a person who gives beauty treatments to the hair, skin, and nails. A cosmetologist sometimes is called a beauty operator, hairstylist, hairdresser, or beautician.

WHAT DOES A BARBER/COSMETOLOGIST DO?

The main task of a barber or cosmetologist is to cut customers' hair. A barber or cosmetologist also--

- selects hairstyles that make customers attractive
- shampoos hair
- uses combs, brushes, and hair dryers to style hair
- uses special chemical treatments to color, straighten, or curl hair
- advises customers on how to care for hair
- sells beauty products to customers
- talks to customers
- keeps the work area and tools clean
- keeps records of services provided and amounts charged

In addition to these tasks, a barber also--

- trims beards, mustaches, and sideburns
- gives scalp treatments and facial massages
- gives shaves
- fits hair pieces

A cosmetologist might--

- give manicures
- give scalp and facial treatments
- provide makeup advice
- clean and style wigs and hair pieces

A barber or cosmetologist uses math on the job every day. As a barber or cosmetologist, you--

- add, subtract, multiply, and divide
- use whole numbers, fractions, decimals, and percentages
- measure time and liquids
- figure the amount the customer owes
- count money
- make change for the customer
- figure your commission*
- schedule appointments

DEFINITION

*A commission is a certain percentage that the barber or cosmetologist receives from the price of the work. For example, if the commission rate is 50%, the barber would receive $10.00 of a $20.00 haircut.

A barber or cosmetologist uses math to figure out customer checks.

EXAMPLE

A customer check is an itemized list of--

- services provided
- hair care products sold

A customer check also includes the prices for each service and product listed. A sample customer check might look like this:

Customer Check

Customer _____

Stylist _____ **Time** _____

	Charge
Cut and blow-dry	$ 16.00
Manicure	$ 4.25
1 bottle shampoo	$ 2.75
	$
	$
Total	$

What is the total of the customer check?

To find the total, add the amounts in the charge column for each service and product.

$16.00
4.25
+ 2.75
$23.00

The customer check total is $23.00.

NOW YOU TRY IT

Practice Exercise A

Find the total for each of the following customer checks.

1.

Customer Check		
Customer		
Stylist	Time	
	Charge	
Shampoo	$	2.75
Permanent	$	50.00
Nail polish	$	2.67
	$	
	$	
Total	$	

2.

Customer Check		
Customer		
Stylist	Time	
	Charge	
Haircut	$	12.00
Trim beard	$	5.00
Trim mustache	$	3.75
Manicure	$	5.27
	$	
Total	$	

3.

Customer Check		
Customer		
Stylist	Time	
	Charge	
Hair set and comb	$	10.00
Haircoloring	$	25.00
1 bottle shampoo	$	4.38
1 bottle conditioner	$	8.79
1 can hair spray	$	2.50
Total	$	

4.

Customer Check		
Customer		
Stylist	Time	
	Charge	
Shampoo	$	3.50
cut and blow-dry	$	19.75
Permanent	$	55.00
Haircoloring	$	27.50
Manicure	$	6.25
Total	$	

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A barber or cosmetologist uses math to figure out commissions.

EXAMPLE

Quite often a barber or cosmetologist will receive a commission for work done. A commission is a certain percentage of the total cost of the work.

Let's assume that a barber or cosmetologist has a commission rate of 48%. What was the commission if the barber or cosmetologist sold $80.00 worth of services?

To find the commission, multiply the amount of services by the commission rate.

$80.00 x .48 = $38.40 commission

The barber or cosmetologist received a commission of $38.40.

NOW YOU TRY IT

Practice Exercise B

Find the commission for each of the following problems.

	Amount of Services	Commission Rate	Commission
5.	$24.75	20%	?
6.	$55.00	25%	?
7.	$72.87	30%	?
8.	$115.75	48%	?
9.	$124.00	50%	?
10.	$189.75	20%	?
11.	$235.00	25%	?
12.	$294.00	48%	?
13.	$72.67	15%	?
14.	$98.34	30%	?

A barber of cosmetologist uses math to figure out discounts and sale prices.

EXAMPLE

Sometimes hair care services and products are offered at a discounted price. A barber or cosmetologist must be able to figure out the amount of the discount and the sale price.

Let's assume a beauty shop is having a sale on shampoo. Shampoo is being sold at a 20% discount. The regular price of the shampoo is $6.50. What is the amount saved? What is the sale price?

Find the amount saved by multiplying the regular price by the percent of discount:

$6.50 x .20 = $1.30 = amount saved

Find the sale price by subtracting the amount saved from the regular price:

$6.50 - 1.30 = $5.20

The sale price is $5.20.

NOW YOU TRY IT

Practice Exercise C

For each product or service, find the amount saved. Round your answers to the nearest whole cost. Then find the sale price.

	Product or Service	Regular Price	Discount	Amount Saved	Sale Price
15.	Permanent	$42.00	20%	?	?
16.	Haircoloring	$25.00	25%	?	?
17.	Shampoo	$ 6.75	20%	?	?
18.	Hair spray	$ 2.50	10%	?	?
19.	Cut and blow-dry	$16.00	5%	?	?
20.	Haircut	$12.00	5%	?	?
21.	Hair set and comb	$11.00	10%	?	?
22.	Conditioner	$11.95	20%	?	?
23.	Nail polish	$ 6.30	10%	?	?
24.	Polish remover	$ 6.00	10%	?	?

A barber or cosmetologist uses math to mix materials.

EXAMPLE

Barbers and cosmetologists may mix their own ingredients to make such products as skin ointments and shampoos.

Let's assume that a barber or cosmetologist makes a special shampoo. To make the shampoo, the barber or cosmetologist mixes:

1 part water
2 parts assorted herbs
3 parts soap crystals

If a batch of shampoo weighs 24 pounds, how many pounds of each ingredient were used?

To find these amounts, follow the steps below.

Step 1. Find the total number of parts in the entire mixture by adding the number of parts of each ingredient:

$$1 + 2 + 3 = 6 \text{ parts}$$

Step 2. Find out how much each of these 6 parts weighs. To do this, divide the total weight of the mixture by the number of parts in the entire mixture:

$$24 \text{ lbs.}/6 \text{ parts} = 4 \text{ lbs./part}$$

Step 3. Multiply the weight per part by the number of parts of each ingredient in the mixture:

Water = 1 part x 4 lbs./part = 4 lbs.
Herbs = 2 parts x 4 lbs./part = 8 lbs.
Soap = 3 parts x 4 lbs./part = 12 lbs.

To make a batch of shampoo weighing 24 pounds, 4 lbs. of water, 8 lbs of assorted herbs, and 12 lbs. of soap crystals were used.

NOW YOU TRY IT

Practice Exercise D

To make shampoo, a barber or cosmetoligist mixes:

1 part water
2 parts assorted herbs
3 parts soap crystals

25. If a batch of shampoo weighs 18 pounds, how many pounds of each ingredient were used?

26. A barber or cosmetologist wants to make 42 pounds of shampoo. How much water, assorted herbs, and soap crystals are needed?

27. A batch of shampoo weighs 120 pounds. How many pounds of water, assorted herbs, and soap crystals were used?

28. A barber or cosmetologist used 10 pounds of water to make a batch of shampoo weighing 60 pounds. How much assorted herbs and soap crystals were used?

29. A barber or cosmetologist used 12 pounds of assorted herbs to make a batch of shampoo. How much water and soap crystals were used? How much did the batch weigh?

WHERE DOES A BARBER/COSMETOLOGIST WORK?

A barber/cosmetologist usually works in either a barbershop or beauty shop. Many barbershops and beauty shops serve both male and female customers and are called unisex salons. The shops can be located in--

- department stores
- hotels
- airports
- hospitals
- shopping centers

As a barber/cosmetologist, you will work with many people, such as--

- the shop owner or shop manager
- other barbers/cosmetologists
- customers

The shop owner or manager will make sure that you have supplies in order to do your work. The manager will also set the shop's policies and handle customer complaints.

The service you provide to your customers is the most important part of your work. If you serve many customers and they are happy with your work, your earnings will increase because most barbers/cosmetologists earn a commission and tips.

To keep your customers happy, you must listen carefully to what they say. You also must make sure that your customers feel comfortable and trust your work. Some ways to do this are to be friendly and to talk to your customers about what you are doing to their hair.

As a barber/cosmetologist, you will use special hairstyling tools. You will use--

- combs and brushes
- scissors
- razors
- curling irons
- hair dryers
- **sterilizing*** equipment

As you become more experienced, you may want to be a shop owner or manager. A shop owner or manager hires and supervises workers, keeps records, and orders supplies. It can cost thousands of dollars to open your own shop and you must have good business skills.

DEFINITION

*To <u>sterilize</u> is to destroy germs by using a heat or chemical process.

IF YOU ARE INTERESTED IN

THE WORK OF A BARBER/COSMETOLOGIST

AND WOULD LIKE TO KNOW MORE,

READ ON

WHAT TRAINING, EDUCATION, AND EXPERIENCE DO YOU NEED TO BECOME A BARBER/COSMETOLOGIST?

The job of a barber/cosmetologist can be very demanding. You should be able to stand on your feet for hours at a time. You must be able to work with your hands at shoulder level and have good finger movement.

To get a job as a barber/cosmetologist, you need to know about hair care. You need to know how to--

- cut hair
- style hair
- care for hair
- straighten hair
- give permanent waves
- lighten or darken hair color
- clean, style, and fit hair pieces and wigs
- deal with customers

Every state requires barbers and cosmetologists to be licensed. The standards necessary to obtain a license vary from one state to another. In most states, you will have to be at least sixteen years old, pass a physical examination, and have graduated from a state-licensed barber or cosmetology school. In many states, you also will have to have graduated from high school.

You probably will have to take a licensing examination. The examination usually consists of a written test and a test where you show that you can perform the work.

You can get training to be a barber/cosmetologist at a licensed barber/cosmetology school. The training can take from six months to one year to complete. Some high school programs also offer this training along with a high school diploma, and can take two to three years to complete.

In some states, you can learn to be a barber/cosmetologist by going into an apprenticeship program. In these programs, you work on the job while being taught about hair care. Apprenticeship programs may take up to two years, and you are paid for the work you do.

Once you've gotten a job as a barber/cosmetologist, you can move up to a better job, such as being a manager, by showing that you can do your job well. Taking every chance to learn new skills will help you move up. Showing that you have math skills will also help you.

DO YOU WANT TO DO MORE BARBER'S/ COSMETOLOGIST'S MATH?

Practice Exercise E

Find the total for each of the following customer checks.

30.

Customer Check		
Customer		
Stylist	Time	
		Charge
Cut and blow-dry		$ 35.00
Manicure		$ 12.50
1 bottle shampoo		$ 8.79
1 bottle conditioner		$ 9.79
		$
	Total	$

31.

Customer Check		
Customer		
Stylist	Time	
		Charge
Permanent		$ 65.00
Haircoloring		$ 35.00
Manicure		$ 20.00
1 bottle nail polish		$ 8.95
1 bottle polish remover		$ 7.95
	Total	$

32.

Customer Check		
Customer		
Stylist	Time	
		Charge
Haircut		$ 25.00
Trim beard		$ 10.00
Trim mustache		$ 8.00
Manicure		$ 6.00
1 can hair spray		$ 3.00
	Total	$

33.

Customer Check		
Customer		
Stylist	Time	
		Charge
Shampoo		$ 4.75
Permanent		$ 45.50
Haircoloring		$ 35.00
Manicure		$ 15.00
		$
	Total	$

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Practice Exercise F

Find the commission for each of the following problems.

	Amount of Services	Commission Rate	Commission
34.	$75.00	15%	?
35.	$119.40	20%	?
36.	$136.45	25%	?
37.	$152.50	18%	?
38.	$209.20	17%	?
39.	$245.89	35%	?
40.	$ 61.11	48%	?
41.	$333.30	50%	?
42.	$324.67	35%	?
43.	$350.50	30%	?

Practice Exercise G

For each product or service, find the amount saved. Round your answers to the nearest whole cent. Then find the sale price.

	Product or Service	Regular Price	Discount	Amount Saved	Sale Price
44.	Haircut	$25.00	20%	?	?
45.	Hair set and comb	$19.95	20%	?	?
46.	Cut and blow-dry	$35.00	25%	?	?
47.	Permanent	$60.00	20%	?	?
48.	Hair spray	$ 7.89	15%	?	?
49.	Conditioner	$ 8.50	10%	?	?
50.	Shampoo	$ 8.00	5%	?	?
51.	Nail polish	$ 5.75	20%	?	?

Practice Exercise H

To make a skin lotion, a barber or cosmetologist mixes:

1 part water
1 part cocoa butter
2 parts lanolin

52. If a batch of skin lotion weighs 16 pounds, how many pounds of each ingredient were used?

53. A barber or cosmetologist wants to make 72 pounds of skin lotion. How much water, cocoa butter, and lanolin are needed?

54. A barber or cosmetologist used 12 pounds of cocoa butter to make a batch of skin lotion weighing 48 pounds. How much water and lanolin were used?

55. A barber or cosmetologist used 48 pounds of lanolin to make a batch of skin lotion. How much water and cocoa butter were used? How much did the batch weigh?

WOULD YOU LIKE TO EXPLORE SOME MORE?

1. Ask a friend or relative if you can practice hairstyling on him or her. Shampoo the hair. Use rollers or a curling iron to set the hair. Comb the hair in different styles.

2. Go to a barber or beauty shop. Watch the barbers and cosmetologists do their work. Think about the things you like and do not like about their work.

3. Talk to several barbers or cosmetologists. Ask what things they like and do not like about their work. Ask them how and where they got their training.

4. Call or write to your state agency that licenses barbers or cosmetologists. Ask what training you need in order to become a barber or cosmetologist. Ask what kinds of tests you will have to take. Ask if the license will allow you to work in any other states.

5. Are you interested in other jobs in the beauty industry?

   - A **shampooer** washes and conditions hair for the barber or cosmetologist.
   - A **manicurist** cleans, shapes, and polishes customers' fingernails and toenails.
   - A **makeup artist** applies makeup to customers' faces to improve their appearance.
   - An **electrologist** removes unwanted hair from the skin of customers.
   - A **scalp treatment operator** gives hair and scalp conditioning treatments for health purposes.

   You can do these jobs without all the math skills listed in this booklet, but you can do your work better if you have math skills. You also may get a chance to move up to a better job if you can show that you can do your work well. Part of doing your work well is doing the math needed on the job.

GLOSSARY

Asterisk (*): a mark that tells you to look at the bottom of the page for the meaning, or definition, of the word.

Commission: a certain percentage that the barber or cosmetologist receives from the price of the work. For example, if the commission rate is 50%, the barber would receive $10.00 of a $20.00 haircut.

Cosmetologist: a person who gives beauty treatments to the hair, skin, and nails. A cosmetologist sometimes is called a beauty operator, hairstylist, hairdresser, or beautician.

Glossary: a list of words with their meanings.

Sterilize: to destroy germs by using a heat or chemical process.

ANSWER SHEET

Practice Exercise A

1. $55.42
2. $26.02
3. $50.67
4. $112.00

Practice Exercise B

5. $4.95
6. $13.75
7. $21.86
8. $55.56
9. $62.00
10. $37.95
11. $58.75
12. $141.12
13. $10.90
14. $29.50

Practice Exercise C

	Amount saved	Sale price
15.	$8.40	$33.60
16.	$6.25	$18.75
17.	$1.35	$ 5.40
18.	$0.25	$ 2.25
19.	$0.80	$15.20
20.	$0.60	$11.40
21.	$1.10	$ 9.90
22.	$2.39	$ 9.56
23.	$0.63	$ 5.67
24.	$0.60	$ 5.40

Practice Exercise D

25. 3 lbs. water, 6 lbs. assorted herbs, 9 lbs. soap crystals
26. 7 lb. water, 14 lbs. assorted herbs, 21 lbs. soap crystals
27. 20 lbs. water, 40 lbs. assorted herbs, 60 lbs. soap crystals
28. 20 lbs. assorted herbs, 30 lbs. soap crystals
29. 6 lbs. water, 18 lbs. soap crystals, 36 lbs.

Practice Exercise E

30. $66.08
31. $136.90
32. $52.00
33. $90.25

Practice Exercise F

34. $11.25
35. $23.88
36. $34.11
37. $27.45
38. $35.56
39. $86.06
40. $29.33
41. $166.65
42. $113.63
43. $105.15

Practice Exercise G

	Amount saved	Sale price
44.	$ 5.00	$20.00
45.	$ 3.99	$15.96
46.	$ 8.75	$26.25
47.	$12.00	$48.00
48.	$ 1.18	$ 6.71
49.	$ 0.85	$ 7.65
50.	$ 0.40	$ 7.60
51.	$ 1.15	$ 4.60

Practice Exercise H

52. 4 lbs. water; 4 lbs. cocoa butter; 8 lbs. lanolin
53. 18 lbs. water; 18 lbs. cocoa butter; 36 lbs. lanolin
54. 12 lbs. water; 24 lbs. lanolin
55. 24 lbs. water; 24 lbs. cocoa butter; 96 lbs.